Professional 2.4G/5G High WiFi

Repeater

PM2.4G/PM5G

VGA1000/VGA2000

Quick Setting Guide

Declaration

Product Selection Form

Model	PM5G	VGA1000	PM2.4G	VGA2000
Module or Finished product	Module	Finished product	Module	Finished product
Built-in battery	None	Built-in 6000mAH lithium battery	None	Built-in 6000mAH lithium battery
Supply Voltage/Current	5V/3A	4.2V Lithium battery-powered	5V/3A	4.2V Lithium battery-powered
Ethernet Port	Requires an external network transformer to use	None	Requires an external network transformer to use	None
Pairing method	WEB Settings		WEB Settings	
Main Application	Long distance WiFi transmission or WiFi coverage 1. Long distance WiFi camera 2. UVA figure transmission 3. Long distance fast-networking projects			
Working Mode	Repeater + Bridge		Repeater + Bridge	
5G Transmission Power	25.8dbm--27dbm		25--27dBm	
Point to point barrier-free transmission	500m--800m		1200m--2000m	
Transmission Rate	2.4G 300Mbps, 5G 450Mbps		300Mbps	
2.4G Antenna Gain	1.0dbi--1.5dbi		4.5dbi--5dbi	
5G Antenna Gain	4.5dbi--5dbi		None	
Temperature compensation	Support		Support	

VONETS High power series WiFi product Features

- PM5G/VGA1000 is dual band WiFi Repeater product, support both 2.4G and 5G Band.   2.4G band is normal power, barrier-free transmission distance is up to 100 meters;   5G band is high power, barrier-free transmission distance is up to 1000 meters, in the unmanned aerial vehicle on the measured distance of 800 meters;
- VGA2000 is 2.4G WiFi Repeater product, the transmission power is up to 26dbm, barrier-free transmission distance is up to 2000 meters;
- VGA1000/PM5G are mainly used for long distance network data transmission and

wide range of WiFi signal coverage, support both bridge and repeater function;
- VGA1000/PM5G, PM2.4G/VGA2000, (it is best to use them in pairs), are mainly used for long distance WiFi cameras and UAV figure transmission application, software configuration is so easy:
  1) VGA1000 connects to PM5G in pairs;
  2) VGA1000 is for ground station, PM5G is air module or remote module;
  3) VGA1000/PM5G support hot name name imitate function
  4) Multiple VGA1000 or PM5G can form star network;
  5) The usage of VGA2000 and PM2.4G is the similar as the above four points;
- VGA1000/PM5G, PM2.4G/VGA2000 are all transparent bridge, but transparent transmission is only for IP layer packets, for the link layer (MAC layer) of the packet will be MAC address translation. **For network devices that use MAC layer addressing at the link layer, it may not be fully applicable.**
- VGA1000/VGA2000 are both built-in battery, suitable for mobile portable applications, to facilitate rapid long-distance emergency network;
- Support temperature compensation, to ensure that the performance of industrial equipment for a long time and stable operation;
- All modules provide UART port with standard TTL level, is convenient for secondary development;
- Module with so small size: 30mm*60mm*1.6mm.

VONETS High Power Series WiFi Product Appearance

- PM5G/PM2.4G product structure and PIN definition, see the diagram below:
(The thickness of module board 1.6mm+-10%, for detailed dimensions, please see the CAD file from the official website)

5G Antenna welding interface

2.4G Antenna
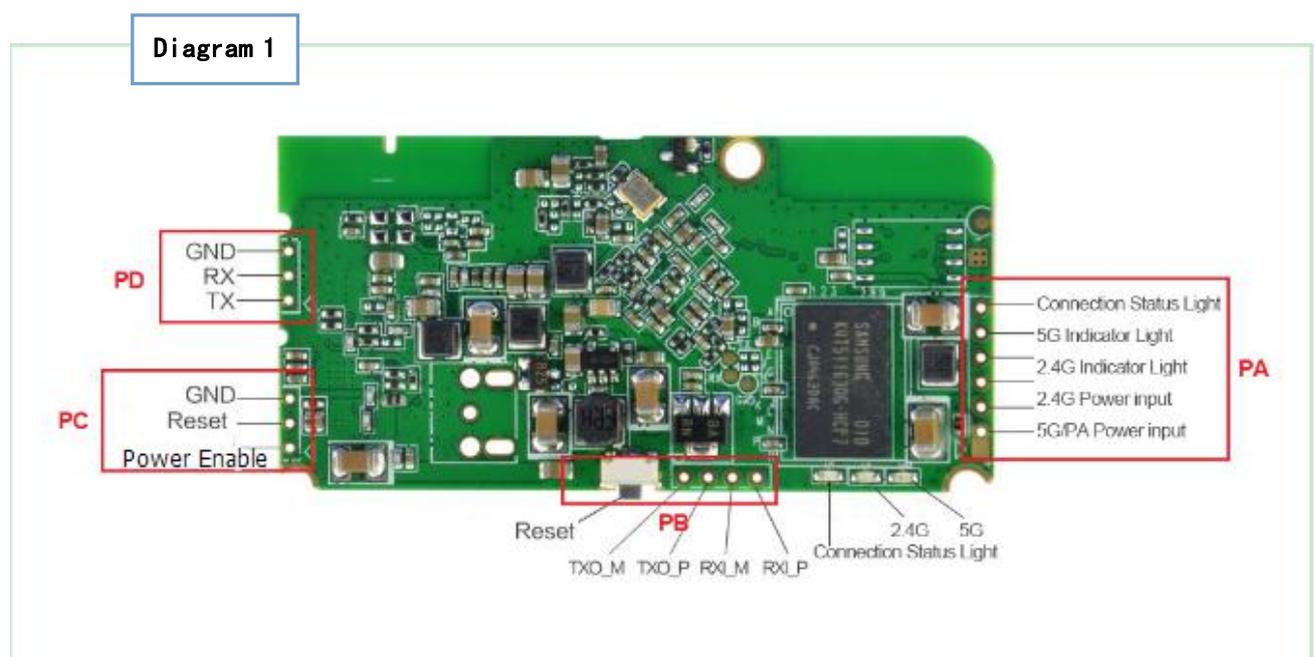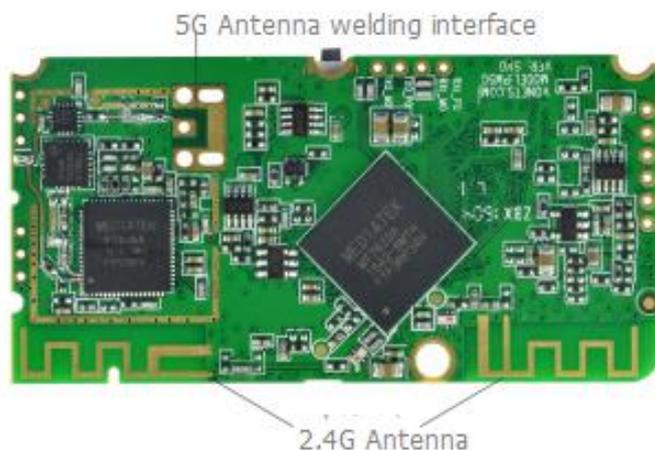
VGA1000/VGA2000 Appearance

Antenna

65mm

18mm

100mm

Battary indicator light

5G indicator light

2.4G indicator light

Status light

Button

Micro usb
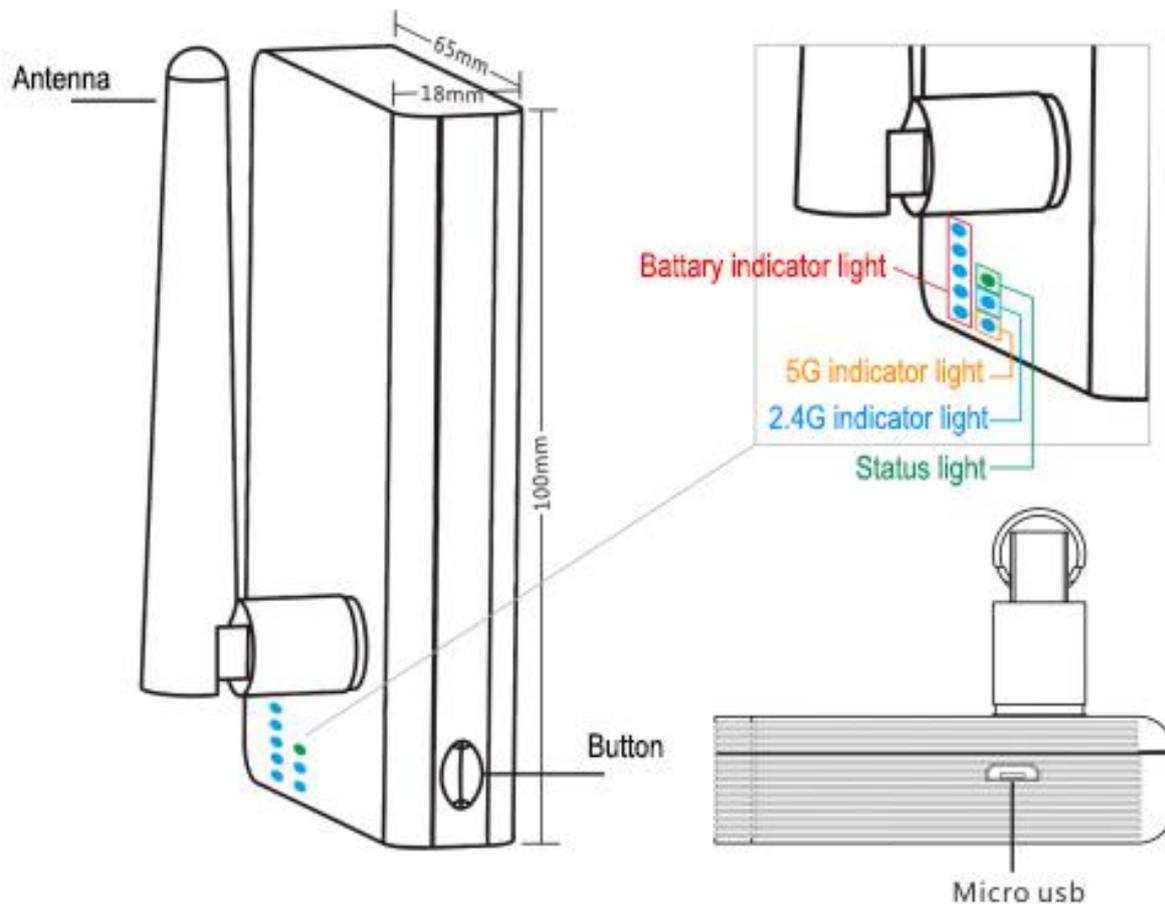
PM5G/PM2.4G Module Quick Setting Guide

Step1. Connect --When configuration, the connection method is as below diagram:

Step 2. The module is powered on (For module supply voltage, current, please check <Product Selection Form>, PIN definition, please see Diagram 1)

Step 3. Connect the WiFi hot spot of module by smart phone or PC
(There are two hot spot 2.4G and 5G hot spot, you can choose any one to connect)
WiFi hot spot parameters of module is as below:
WiFi SSID: **VONETS_********
WiFi Password: **12345678**

Step 4. Log in WEB configured page, configure the parameters of source WiFi hot spot
(The default work mode of PM2.4G/PM5G is bridge mode)
1) Open browser (IE, Google Chrome, Safari, the mobile phone browser and so on), enter IP address (192.168.254.254) or configured domain name of configured page (http://vonets.cfg)

2) Enter user name and password (it is admin) on the log in page, click "Login" button to enter configured page;
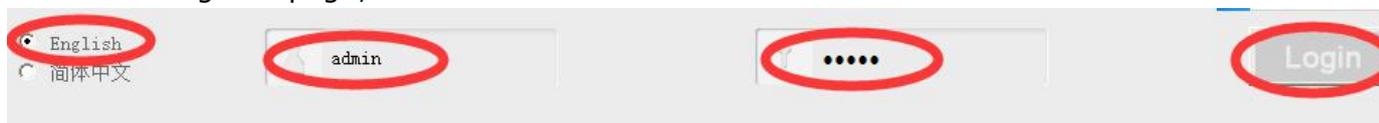
3) Search the source WiFi hot spot
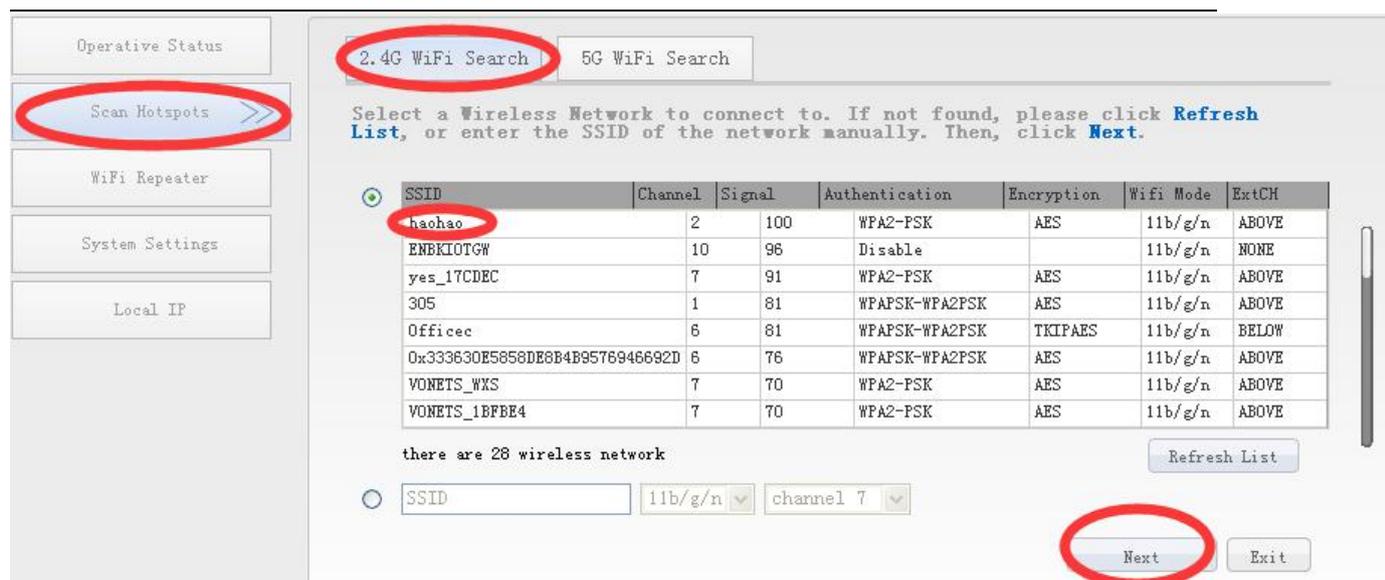
4) Set up the source WiFi hot spot password, extended WiFi hot spot SSID
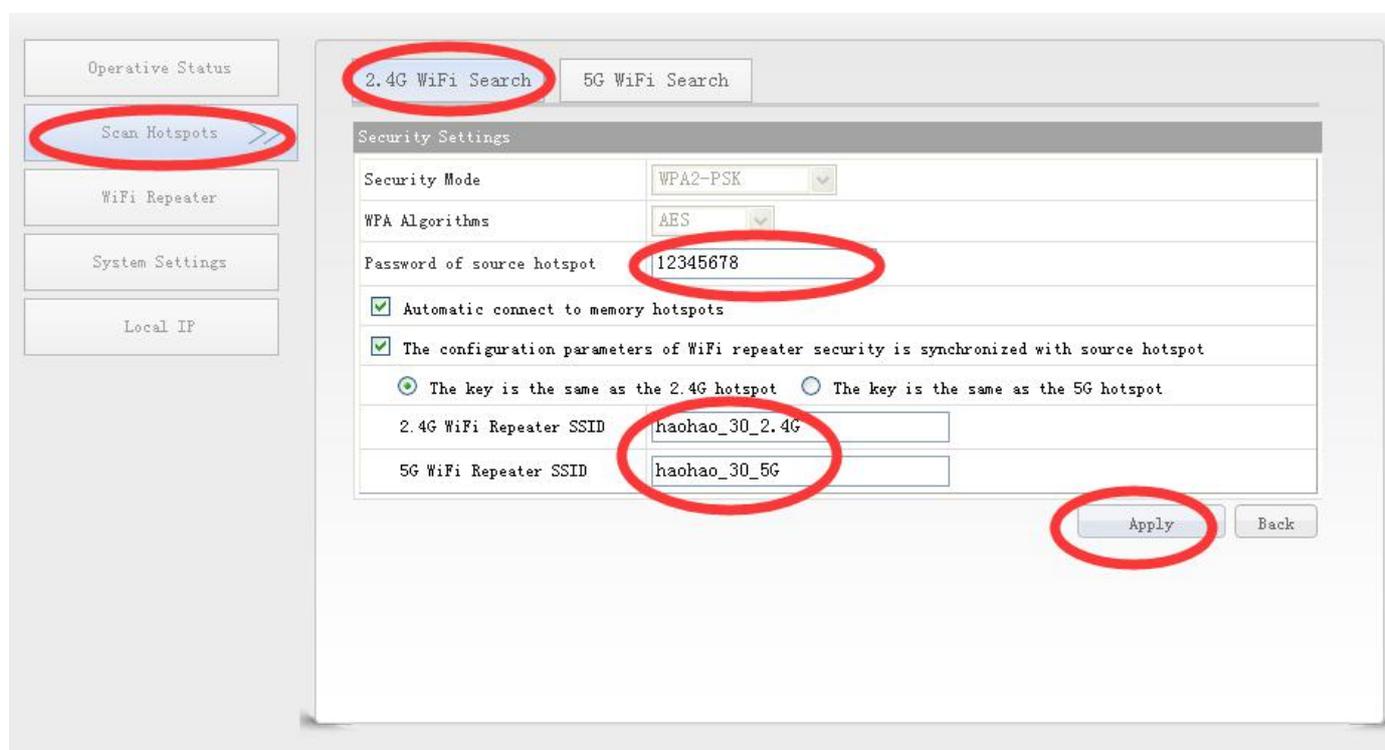
5) Reboot the device, the device will automatically connect to the configured WiFi hot spot, if it is configured successfully, the green indicator will flash quickly.

Note 1: When bridge/repeater product are connected to external network, the IP address of the device will change. At this time, when log in configured page, we suggest you enter configured domain name: http://vonets.cfg. Or in Windows command window, enter the command: ping vonets.cfg, to get the IP address of the device, then log in configuration page with this IP.

Note 2: The optional channel of 5G WiFi is: 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 149, 161, 165, factory default is the best channel -- 149.

VGA1000/VGA2000 Series Product Introduction

VGA1000/VGA2000 is high power WiFi Repeater, bridge, is also can be used for remote camera connection, the performance of wireless transmission is consistent with PM5G/PM2.4G, but it is built-in battery, suitable for mobile portable applications, to facilitate rapid long-distance emergency network; the below VGA is for VGA1000 and VGA2000.

● VGA Power indicator as below form:

Power indicator light	●	● ●	● ● ●	● ● ● ●	● ● ● ● ●
Power	<15%	15%-25%	25%-50%	50%-75%	75%-100%

● VGA common operation as below form:

VGA normal operation form				
Operation	Step	LED Status	Time required	Remark
Power on	Long press 3 seconds	The battery indicator flashes in a flowing state	50S	Start complete, stop flashing, the normal display of the current battery power
Power off	Quick Click	The power indicator light goes out		
Factory Reset	1. First, make the device boot normally; 2. Long press 2 seconds, the indicator will flash; 3. Within 2 seconds, press twice again	The battery indicator flashes in a flowing state	85S	In the recovery, the device can't be shut down, power off the device will lead to burn
Power Display	In the off state, short press the button	Display the current battery power		It is recommended that only one cell power left, then charge the device

VGA Quick Setting Guide

Step1. Connect --When configuration, the connection method is as below diagram:

Step 2. VGA is powered on--Operate the device according to **<VGA normal operation form>**

Step 3. Connect the WiFi hot spot of VGA by smart phone or PC
(There are two hot spot 2.4G and 5G hot spot, you can choose any one to connect)
WiFi hot spot parameters of module is as below:
WiFi SSID: **VONETS_******
WiFi Password: **12345678**

Step 4. Log in WEB configured page of VGA, configure the related parameters of source WiFi hot spot

1) Open browser (IE, Google Chrome, Safari, the mobile phone browser and so on), enter IP address (192.168.254.254) or configured domain name of configured page (http://vonets.cfg)

2) Enter user name and password (it is admin) on the log in page, click "Login" button to enter configured page;

Screen 1 — Scan Hotspots / 2.4G WiFi Search
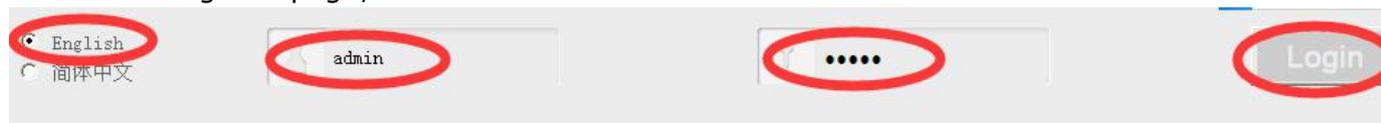
Operative Status
Scan Hotspots
WiFi Repeater
System Settings
Local IP

2.4G WiFi Search | 5G WiFi Search

Select a Wireless Network to connect to. If not found, please click **Refresh List**, or enter the SSID of the network manually. Then, click **Next**.

SSID	Channel	Signal	Authentication	Encryption	Wifi Mode	ExtCH
haohao	2	100	WPA2-PSK	AES	11b/g/n	ABOVE
ENBKIOTGW	10	96	Disable		11b/g/n	NONE
yes_17CDEC	7	91	WPA2-PSK	AES	11b/g/n	ABOVE
305	1	81	WPAPSK-WPA2PSK	AES	11b/g/n	ABOVE
Officec	6	81	WPAPSK-WPA2PSK	TKIPAES	11b/g/n	BELOW
0x333630E5858DE8B4B9576946692D	6	76	WPAPSK-WPA2PSK	AES	11b/g/n	ABOVE
VONETS_WXS	7	70	WPA2-PSK	AES	11b/g/n	ABOVE
VONETS_1BFBE4	7	70	WPA2-PSK	AES	11b/g/n	ABOVE

there are 28 wireless network

Refresh List

SSID | 11b/g/n | channel 7

Next   Exit

Screen 2 — Security Settings / 2.4G WiFi Search

Operative Status
Scan Hotspots
WiFi Repeater
System Settings
Local IP

2.4G WiFi Search | 5G WiFi Search

Security Settings

Security Mode   WPA2-PSK
WPA Algorithms   AES
Password of source hotspot   12345678

☑ Automatic connect to memory hotspots
☑ The configuration parameters of WiFi repeater security is synchronized with source hotspot
  ⦿ The key is the same as the 2.4G hotspot   ○ The key is the same as the 5G hotspot

2.4G WiFi Repeater SSID   haohao_30_2.4G
5G WiFi Repeater SSID   haohao_30_5G

Apply   Back

VGA1000/VGA2000 Indicator Light Instruction

WiFi Status Light	Hot spot connection Status	Remark
(Green light) Quick Flash	Not connected	Products are not connected to any hot spots
(Green Light) Quick Flash	Connected	WiFi hot spot signal >50%
(Green Light) Intermittent Quick Flash	Connected	WiFi hot spot signal is 10%-50%
(Green Light) Slow Flash	Connected	10%WiFi hot spot signal is less than 10%
(Green Light) Slow Flash	Connection failed	Products are not connected to any hot spots

General operation and common faults of VGA/PM5G/PM2.4G Series Products

1. How to reset to the factory default parameters of VGA?
Power on the device, after 50 seconds, first, make the device boot normally; long press 3 seconds until the indicator light flash, after flashing, quick press twice, the battery indicator flashes in a flowing state, it will take about 85 seconds.
During the recovery of the factory operation, the product can't be powered off, otherwise it may cause damage to the product.

2. How to reset the factory default parameters of PM5G/PM2.4G?
Power on the device, after 50 seconds, long press reset button (or connect Reset PIN of module to GND) 3 seconds, then release, module will factory reset, it will take 85 seconds, during the recovery of the factory operation, the product can't be powered off, otherwise it may cause damage to the product.

3. Does the VONETS series product support firmware upgrade, how to upgrade?
All VONETS series products support firmware upgrade, and support online upgrade, please visit website: www.vonets.com to refer to the related documents.

4. The WiFi hot spot of VGA/PM5G/PM2.4G can be found, but the smart phone or PC can't connect to this device hot spot?
- Reason 1. Due to some unexpected operation or power down, caused the destroy of device parameters. At this time, just need to reset the device to factory default parameters;
- Reason 2. **Poor power supply performance of the device will seriously**

affect the WiFi connection performance, or even damage the device, so we suggest high quality power supply, recommand the total input power is 5V/3A(15W), Ripple less than 100mV power supply. For module, please make sure use **dual power supply (5V/1A, 5V/2A)** according to PIN definition.

5. The device has been configured the source WiFi hot spot parameters, the smart phone or PC has connected to the device WiFi hot spot, but still doesn't get internet?
First, check the status light to know the current state of the device, then according to the state of the device to analyze the fault reasons;
- Reason 1. The distance between the device and source WiFi hot spot is too long, cause the communication performance degradation, finally effect the user's access to the Internet. At this time, just need shorten the distance between the device and source WiFi hot spot to solve this problem;
- Reason 2. Due to some unexpected operation or power down, caused the destroy of device parameters. At this time, just need to reset the device to factory default parameters;
- Reason 3. The configured source WiFi hot spot parameters are not correct. At this time, just need to configure the correct parameters then reboot the device;

6. The smart phone or PC has been connected the device by WiFi or Ethernet cable, but user can't log in the device WEB page, or after log in the WEB it shows error?

- Reason 1. The users don't use the browser recommended by VONETS(IE, Google Chrome, Safari, the mobile phone browser);
- Reason 2. The smart phone or PC installed the firewall, the security level is set too high, caused the above problem. At this time, only need to close the firewall;
- Reason 3. The security level of browser is too high, it will also cause the above problem. At this time, just need to reduce the browser's security level, then log in again;
- Reason 4. The IP address of the device input error. For devices that are in use, the IP address of the device is automatically assigned by the source hot spot, so the IP address will change, at the same time, you can review "Note 1" to obtain IP address; for the new factory equipment, users only need to enter the correct default IP, VGA series default IP is 101.12.30.56, PM5G / PM2.4G the default IP is 192.168.254.254.